

Title (en)

Cooling apparatus for integrated circuit chips.

Title (de)

Kühlapparat für integrierte Schaltungschips.

Title (fr)

Dispositif de refroidissement pour des puces à circuit intégré.

Publication

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Application

EP 94109507 A 19940620

Priority

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Abstract (en)

A cooling apparatus for integrated circuit chips (112) in which the pressure of coolant does not affect the chips (112) is disclosed. A block (121) is provided with a plurality of holes. Cooling members (131) are inserted in these holes. An elastic member (134) is filled between the block (121) and the cooling member (131). The cooling member (131) is supported to the block (121) by the elastic member (134). Each cooling member (131) is connected to each other by pipes (132). A bellows (133) can be provided between the cooling member (131) and the pipe (132). When the block (121) is loaded on the substrate (111) on which the integrated circuit chips (112) are mounted, the elastic member (134) deforms and the cooling member (131) displaces in accordance with the height and inclination of the integrated circuit chip (112). The lower surface of the cooling member (131) is brought into close contact with the integrated circuit chip (112) due to the deformation of the elastic member (134). The bellows (133) deforms in accordance with the displacement of the cooling member (131) to ensure the normal connection of the pipe (132). When the coolant is supplied, the expanded bellows (133) pushes the pipe (132) up but does not push the cooling member (131) down. <IMAGE>

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